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ABSTRACT

The six sections of this report describe the collection of occupational information on an interstate basis to plan effective education programs for manpower development. Focus is on eight southern states--Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee. Section 1 discusses two views of vocational education: (1) preparation for employment upon graduation and (2) skills and training to increase productive capability of human resources and employability and satisfaction with work and life. Section 3 compares the ideal occupational information system described in section 2 to reality by reviewing data gathering programs. Section 4 considers the issue of program planning versus program management and impact of documented occupational supply and demand upon program decisions. Answers to questions concerning use of manpower data in vocational education planning are summarized in section 5. They are divided by groups questioned during visits to region IV. Section 6 concentrates on the economy of the region in contrast to the rest of the United States, and then each state is examined in more detail. Finally, attention is devoted to future developments and other impacts on vocational education planning. Ten recommendations for improving occupational information systems are made. (YLB)

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State Planning for Vocational Education

An Evaluation of the Uses of Manpower Data in Determining Occupational Supply and Demand in the Southeastern United States

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by
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STATE PLANNING FOR VOCATIONAL EDUCATION

An Evaluation of the Uses of Manpower Data in Determining Occupational Supply and Demand in the Southeastern United States

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FOREWORD

The Southern Association of Colleges and Schools serves as a resource for states and educational agencies to accomplish together what they cannot accomplish separately. Shared tasks and funds enable us to explore new ways to improve education and to create pilot projects based on innovative ideas.

The Southern Association's Education Improvement Program (EIP) conceives and manages special projects. An exciting new vista linking education and manpower development is reflected in this report by Mrs. Rosalinda Ratajczak, Senior Research Scientist, Georgia Institute of Technology.

The report is the product of regional cooperation among the State Directors of Vocational Education and their planning staffs in the Southeastern States. Dr. William L. Bowden, EIP's Coordinator of Manpower Improvement, effectively developed and managed the project from which this report is derived.

States have responsibility to provide youth and adults with relevant occupational education for career employment in private and public enterprise. Linked to this task are potential solutions leading to national productivity, full employment, and economic progress for all citizens.

This incisive report describes how occupational information may be gathered on an interstate basis to plan effective education programs for the development of manpower.

Felix C. Robb
Director

PREFACE

There is emerging in the United States a federal-state system for gathering occupational information for use in planning vocational education.

At the federal level is the National Occupational Information Coordinating Council (NOICC). At each state level is a State Occupational Information Council (SOICC).

The purpose of the NOICC-SOICC system of occupational information is to provide reliable data about employment needs so states can plan and budget for adequate programs.

The Southern Association of Colleges and Schools is an advocate of regional cooperation to improve the process of gathering and using occupational education. To this end the State Directors of Vocational Education entered into a Memorandum of Agreement with the Southern Association of Colleges and Schools and its Education Improvement Program to explore mutual needs for occupational data.

Specialists from the Economic Development Division, Technology and Development Laboratory, Georgia Institute of Technology, have served as project personnel. Rosalinda Ratajczak, Senior Research Scientist, visited a sample of seven southeastern states, meeting with the state vocational-technical planning staffs. Her carefully honed analysis describes the continuing search for information processes to plan for the preparation of effective manpower in growing and changing economy.

William L. Bowden

Table of Contents

	Page
INTRODUCTION	1
Background	1
Outline of the Report	1
Acknowledgments	1
TWO VIEWS OF VOCATIONAL EDUCATION	3
AN IDEAL OCCUPATIONAL SYSTEM	5
REALITY VS. THE IDEAL OCCUPATIONAL INFORMATION SYSTEM	7
Household Data	8
Establishment Data	8
Occupational Employment Statistics Program	9
Occupational Employment Statistics Survey	9
National/State Industry-Occupation Matrix System	10
State and Area Occupational Projections	11
PLANNING AND DECISION MAKING	15
VISITS TO REGION IV STATES	17
Vocational Education Planning Staff	17
Employment Security Staff	20
Economic Development Staff	21
THE ECONOMY OF THE EIGHT SOUTHERN STATES	23
Introduction	23
Employment -- Current and Historical Trends	24
Growth	24
1976 Shares	27
Type of Industrialization	28
Personal Income	31
Importance of Agriculture	34
Population and Labor Force	34
Employment by Occupation -- Current and Historical	35
Individual States	35
Alabama	35
Florida	37
Georgia	38
Kentucky	39
Mississippi	39
North Carolina	40
South Carolina	41
Tennessee	42

Page

THE ECONOMY OF THE EIGHT SOUTHERN STATES (Continued)

Future Developments 42

RECOMMENDATIONS 45

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Tables

1. 1976 Employment by Industry and Job Increase from 1966 25
2. Annual Growth of Employment, 1966-76 26
3. Distribution of Employment 29
4. Southern Manufacturing 30
5. Comparative Economic and Demographic Statistics 32
6. Per Capita Personal Income 33
7. Employment by Occupation 36
8. Future Employment Growth 43

INTRODUCTION

Background

In order to fulfill Federal funding requirements, each state must submit highly detailed yearly plans for vocational education. Among the legislative goals behind this requirement is the desire that resources for vocational education be allocated toward programs which will actually help students attain employment. The implementation of this goal requires that the states determine the types of jobs where employment opportunities are likely to increase in the future and to meet the market by offering relevant training programs. While the states have always been responsive to economic reality in the planning and management of vocational education, they are now required to project occupational supply and demand each year in a prescribed manner and to justify program allocations on the basis of predicted net demand by Office of Education program category.

Outline of the Report

This report examines the issues raised by this legislative requirement. It discusses an ideal occupational information system and evaluates current efforts by the states, investigating the interaction between the labor and education departments of the states as the providers and users of data. Finally, it describes some of the unique features of the economy of the southern region.

Acknowledgments

This report is part of the research effort of the Manpower Improvement Project, Education Improvement Program of the Southern Association of Colleges and Schools. Support for this work has come from funds contributed by the

State Directors of Vocational Education to the Southern Association of Colleges and Schools.

The survey visits would not have been possible without the cooperation and help of the State Directors of Vocational Education and their planning staffs. I would especially like to thank those State Directors who were able to take time from their busy schedules to meet personally with me: Dr. Charles J. Law, Jr., Dr. Joe D. Mills, Dr. Joe W. Lewis, Dr. T. L. Faulkner, Dr. Billy R. Howard, and Mr. John Leeman. They provided important comments and suggestions about the project and generally enlightened me about the problems facing vocational educators today.

I would also like to thank those individuals who arranged and coordinated my visits with a great spirit of hospitality: Bill McClure, Dr. Leon Sims, Rod Duggor, Norma Sturdivant, Don Milner, Bill Caston, Dr. Mary Louise Simms, Don Coffman, Dr. Dee Wilder, Wiley Simpson, and Wally Thalleen.

The staffs of the Employment Security Agencies in the states were patient with my questions and the individuals I met with who discussed economic development provided valuable insights. I wish also to thank Don Cruse, Regional Director of the Bureau of Labor Statistics, as well as Laura Jackson and Pat Neilson for their continued helpfulness.

Bill Howard of Georgia Tech and Dr. William Bowden of the Southern Association of Schools and Colleges were indispensable in the clarification of the goals of this survey project. Finally, I am grateful to Mrs. Mildred Cole for the competent and professional preparation of the final report.

Rosalinda Ratajczak

TWO VIEWS OF VOCATIONAL EDUCATION

The view of vocational education underlying recent Federal legislation in the area can best be understood as representing one side of a dichotomy. With the Federal version of vocational education, the purpose of training is preparation for employment upon graduation. This version is short-term in outlook and it assumes that vocational education can assume a reactive mode in response to shifts in the occupational structure of the economy. The other side of the dichotomy would characterize the first view of vocational education as that of a "job machine" or a "manpower mill". Advocates of the alternative outlook feel that vocational education should promote long-run benefits to students and to the public. Vocational education, according to this second view, should assume an anticipatory stance, giving students skills and training which will increase the productive capability of our nation's human resources as well as making them more generally employable and more satisfied with their work and their lives.

The distinction in the two views is of more than theoretical interest. It is the advocacy of the first view which is the foundation for the Federal government's insistence upon the detailed breakdown of net occupational demand in the State plans. Because of the first view, the Federal government is less likely to recognize the value of agricultural and home economics programs where few of the graduates find immediate paid training in the field (although many will use their knowledge in non-market activity). Again, because it holds to the first version, it is also less likely to value certain basic skills programs (such as electricity and welding) which tend to help make a student employable, though not necessarily as an "electrician" or a "welder".

However, it would be an error to exaggerate the divisiveness of the dichotomy. To some extent, both views of vocational education can be held and are, in fact, honored by educators. The long-run anticipatory needs of the students tend to be met in the secondary school programs, while short-run job training needs can be met through both secondary and post-secondary programs. Even the most ardent advocate of the "manpower machine" view must recognize that facilities and teacher resources are not instantly adjustable and that students cannot be forced into a program they have no interest in just because a good occupational outlook is predicted. And, even the most intense proponent of the second view must agree that it would be a waste of resources to train students for an occupation which will have no openings and which provides no transferrable skills.

As the needs and requirements of vocational education continually change, it seems likely that the middle road will continue to be the one chosen by the states and that program decisions in the states will continue to be responsive to immediate labor market conditions but not be dictated by them. It is also likely that there will continue to be some friction between the states and the Federal government on this score as performance is audited and measured on the basis of short-term highly disaggregate measures.

AN IDEAL OCCUPATIONAL SYSTEM

The perfect occupational information system does not exist and never will. Tradeoffs must be made between completeness, accuracy, degree of disaggregation, and frequency of reporting on the one hand and the mounting cost of resources used to generate data on the other. Also, the ideal system would require perfect foresight about future economic developments as an input. Still, it is a useful exercise to describe and understand an ideal system. Once this is done, existing occupational information can be evaluated on the basis of how closely it approximates the ideal.

In the ideal system, there is only one breakdown of occupations into categories and this classification is rational, unambiguous, and non-duplicative. This classification of jobs matches the categorization of educational programs offered -- only one job is trained for by one program, and only one program trains for a job.

On the demand side, information is available about current employment by occupational classification for the relevant area -- either the state, a metropolitan area, or some smaller local job market or educational delivery system where resources are to be expended and decisions must be made. Information is also known about future employment by this occupational classification and about future replacement needs by occupation.

On the supply side, complete information is available about all possible competitors for each job position. This would include individuals supplied through the specific vocational education system as well as: 1) migrants from other systems, 2) untrained workers, 3) workers with training in other areas but transferrable skills, and 4) unemployed workers with the requisite skills. Information would also be available on the responsiveness of the "hidden" supply of labor -- individuals who are currently nonparticipants in

the labor force but who might enter the job market should wages rise, job conditions improve, or jobs become more plentiful.

If all this information were available, it would be possible to determine, for each occupational category, the net demand -- i.e., the total of replacement needs and expansion needs less the supply. Resources could be devoted to programs with a high net demand forecast, students could be counseled to go into these programs by being informed of job opportunities, and teachers could seek training in these fields.

REALITY VS. THE IDEAL OCCUPATIONAL INFORMATION SYSTEM

There are several obstacles to the implementation of an ideal occupational information system. The following will be considered:

- Some of the necessary information is not currently collected or is not available in the form required.
- There is no way to obtain some of the required information with certainty. Judgments must be made. Some methods of estimation emphasize consistency of technique while others emphasize incorporation of all available inputs.
- There is no single classification of occupations which suits the many users of occupational data, e.g., Labor, Education, Census, employers, and students.
- Vocational education is a user of data but it cannot mandate the timing, form, and other conditions under which non-education agencies provide the data.

Although vocational educators need, at least annually, data on occupational employment for the state and possibly for areas, this is not typically provided for by those who gather labor market information. The Bureau of Labor Statistics and the state employment security agencies (in cooperative programs with the Bureau of Labor Statistics) are charged with responsibility for several information gathering programs. Most of these programs have purposes which are legislated by Congress. Some of them have a long history of data collection while others are relatively recent.

It is beyond the scope of this report to fully describe and evaluate the many data gathering programs, but a brief review may be helpful to the users of occupational data.

"Household Data" - This term refers to the statistics on the status of the population aged 16 years and over collected by the Bureau of the Census for the Bureau of Labor Statistics as part of their Current Population Survey (CPS) effort. The interviews are conducted on a sample of residential units. This survey classified people as either employed, unemployed, or out of the labor force and collects information about the occupation and industry of the employed. However, the occupation and industry categories correspond to those used in the Census and are not published in detailed form. The occupation or industry for a person with more than one activity is that for which he or she spent the greatest number of hours that week. Moreover, for the employed, there is a "class of worker" breakdown into private wage and salary workers, government wage and salary workers, self-employed, and unpaid family workers. Paid farm laborers would be included in the first group, farm owners in the third group, and other members of a farm household working without pay for 15 hours a week or more would be included in the fourth group. The occupational and industry classifications published from the household survey data are not as complete as in other Bureau of Labor Statistics programs, but more information on sex, age and race characteristics of the employed is provided. The national data are published once a year and geographic profiles for the states are available.

"Establishment Data" - Sometimes termed the "payroll" survey, this program measures employment, hours, and earnings in the nonagricultural sector of the economy. While not giving as many details about the characteristics of the employed (i.e., it does not include the occupation), it give excellent industrial and geographical information. The payroll employment measure is not comparable to the employment measure of the household survey for the following major reasons: 1) a person holding more than one job would be

counted only once in the household survey, but would count for two or more jobs in the establishment survey; 2) information is submitted by companies or institutions in the establishment survey rather than by individuals; 3) the self-employed, unpaid family workers, farm and nonfarm proprietors, farm workers, domestic workers, and military personnel are not included in the establishment survey; 4) the household survey is less than 50,000 households, the establishment data samples over 150,000 establishments; 5) the establishment survey is specifically designed to give valid industry employment estimates for states and areas.

From the description of these programs, it is clear that states cannot rely on either the establishment or the household survey to provide data that they need -- detailed current employment by occupation for states and areas.

A different program, the Occupational Employment Statistics (OES) program, is specifically designed to provide states and areas with occupational information, although not on an annual basis. This program relies on the cooperation of the state employment security agencies and the Bureau of Labor Statistics, and was established as a result of the Manpower Development and Training Act of 1962. The Comprehensive Employment and Training Act of 1973 and further vocational education legislation called for further development of a system of labor market information.

The OES program has three components: 1) the Occupational Employment Statistics Survey, 2) the National/State Industry-Occupation Matrix System, and 3) the State and Area Occupational Projections program (not to be confused with the national Occupational Outlook program).

The Occupational Employment Statistics Survey provides for mail surveys of individual nonfarm establishments to obtain payroll employment by

occupation. The survey is based on a three-year cycle (manufacturing the first year, trade the third year, and all other nonfarm industries the second year). The coverage is highly detailed -- about 500 industries and about 1,500 occupations. Although a very new system (begun on a limited basis in 1971), the surveys offer the richest and most accurate source of occupational information for the states and areas. Eventually, these surveys will be used to develop state industry-occupation matrices as a substitute for those developed by the National/State Industry-Occupation Matrix System (described below). Actually, every state in Region IV now has sufficient data to have its industry-occupation matrix based on OES survey data.

The National/State Industry-Occupation Matrix System tabulates and cross-classifies about 420 occupations with about 201 industry sectors for each state and for sub-areas of the states. The primary use of the matrices is in the state and area Occupational Projections program (described below). Thus, each state has available industry-occupation matrices for the state for 1970, 1974, and 1985.

The main source for the 1970 matrix is the 1970 Census. Many levels of adjustments were made to force the 1970 Census estimates for each industry-occupation cell into agreement with control totals for occupational groups and industry employment from sources other than the Census. For example, the industry employment control totals were based on establishment estimates of private payroll employment adjusted to include the self-employed, unpaid family workers and government workers, but to exclude the secondary jobs of multiple job holders. The occupational group control totals were the annual average employment levels from the household survey.

The matrix for 1985 was developed by forecasting the way in which new technology, new product mix, and other factors would impact the long-run

planners is the fact that the census-based categorization of occupations does not match the Office of Education (OE) coded occupations and programs. The difficulty and variability of the methods used to "cross-walk" between the types of codes is so substantial that cooperation among states in developing a standard cross-walk method and lobbying with the relevant Federal agencies to standardize codes should have the highest priority. The next most pressing problem seems to be the need for occupational demand information at the sub-state level for use in planning by local educational delivery systems. Finally, should there be changes in the industry mix obvious from the data collected for the state and area on the establishment survey basis, then it might be worthwhile to run the establishment industry employment levels through the state's matrix to determine the current occupational employment rather than accepting the interpolated values.

However, there are some valid criticisms of the methodology of the occupational demand data as provided to, and used by, vocational education planners. These are not criticisms in the sense of an agency not fulfilling its mission or not performing its tasks in a competent manner. Rather, there are issues of disagreement as to the proper and most valid way to provide occupational demand data to the vocational education users.

Current methods emphasize consistency and standardization of techniques. The state's industry employment projections are based almost entirely on regression trend analysis on past employment growth as seen in establishment data. These and the matrices provided to the states are not, in fact, "tampered with" to reflect "macro" happenings such as cyclic[illegible]ctuations, "micro" happenings such as large plant openings and closings, or observed substantial deviations for other reasons from the projected numbers.

Perhaps the reason why a standardized and consistent system which may be statistically biased and have obvious errors is preferred to one where judgment and evidence allow frequent changes in response to new information is the fact that forecasts of occupational demand are sensitive and subject to scrutiny. Statistical bias may be preferred to the bias that results from asking about occupational demand directly. Local agencies and local employees tend to be optimistic in their projections of future growth. It is easier to defend the use of an impartial standardized technique than to defend each and every judgment made about the importance of possible differences from the standard path.

One of the major problems with the methodology is that non-primary occupations are dropped. In a region where it is not uncommon for an individual to have a full-time establishment-surveyed job but also to maintain a farm with his family, there is a distinct underreporting of agriculture as an occupation.

Finally, the matching issue goes beyond the problem with codes. Even an extremely valid forecast of increased occupational demand for a given occupation may not translate into a need for a specific vocational training program. This can occur for several reasons, including the fact that many jobs are not vocationally trainable or do not *require* vocational training. Most of the reasons relate to supply and will be treated next.

Because the reason for examining with occupational demand and supply is to learn which occupations will face the greatest pressures in terms of net labor demand, the issue of supply cannot be neglected. However, compared to the vast resources devoted to the determination of occupational demand, there has been very little effort attached to the determination of occupational supply. In most of the states surveyed, the supply data consist

mainly of available vocational education program *completers* as determined by a follow-up of students reported by teachers. Future supply is typically projected on the basis of current enrollments. Although some states are further advanced than others in terms of computerization of student files and utilization of a student-based follow-up, the basic deficiency of this concept of supply remains -- it is terribly incomplete.

The ideal system would provide information about all possible sources of labor to fill a specific occupation's job demand. Most of the states surveyed had difficulty even including the graduates of private vocational training schools and were unable to develop comparable data on CETA program completers. (However, in many cases the latter were included because the delivery system was the vocational education system.) Beyond this, there is no incorporation of alternative sources of labor such as migrants from other areas, untrained workers or non-graduates, the unemployed who could qualify for the job, and those trained in another program but with requisite skills.

It would be hard to recommend that the states, unassisted and unfunded, attempt to develop a methodology to incorporate these more general types of supply. Still, one would hope that when program decisions are being made and when audits are performed to determine "overtraining" or "undertraining", the easily available information about tightness in a labor market or in an occupation would at least be implicitly considered. Several states indicated that placement records of vocational education graduates influence program decisions. This is an example of the use of relevant information obtained outside the State planning process being used in making management decisions. The issue of program planning vs. program management and the impact of documented occupational supply and demand upon program decisions will be considered next.

PLANNING AND DECISION MAKING

The use of the occupational demand and supply data from the annual plan in making program decisions requires two elements: 1) that the decision makers accept and trust the occupational demand and supply statistics, and 2) that they accept the first of the two possible views of vocational education cited in an earlier section. The fact that these two elements are lacking among most vocational educators probably accounts for the minimal interaction between the numbers in the plan and actual program decisions.

It is easy to sympathize with this. When one examines how the occupational demand and supply numbers are developed, it becomes easy to feel that they are put to the wrong use when they are taken literally for a highly disaggregate occupation or even for a major one. For example, when the projections data show a continual decline in agricultural employment and yet when agricultural education graduates seem to find jobs where their training is helpful, this casts suspicion on other numbers. The demand figures ignore skills levels -- e.g., openings for machinists may be only for those with several years experience, not for a recently trained vocational education graduate.

Perhaps the greatest difficulty comes when the manpower projections and student desires and preferences do not match. Sometimes this is because the demand shown includes occupations which do not require vocational education. For example, a food service trainee may find that he would earn no more as a restaurant worker with training than if he had merely worked the equivalent amount of time on-the-job. Another problem is where there are many projected openings in an occupation which isn't deemed to "have a future" by students or their parents. Many occupations continually have openings and yet pay experienced workers little more than entry-level positions, e.g., the

textile mill industry. Students are reluctant to invest time and forego earnings in order to train for such occupations.

Currently, occupational supply and demand considerations are not ignored when a particular program decision for a particular educational delivery system must be made. Programs with high placement rates and high student preference have high priority and probably are in accord with the goals of manpower planning even if that particular program seems to be "overtraining" according to an audit of the plan's net demand.

As state and local planners gain more experience dealing with occupational demand and supply projections, and as the quality of the projections improves over the years with changes by the Bureau of Labor Statistics and the Office of Education, there will probably be more utilization of the projections in actual program decisions.

VISITS TO REGION IV STATES

During February and March of this year, state vocational education, employment security, and economic development personnel were visited in order to learn about the use of manpower data in planning for vocational education. Discussions centered around questions reproduced below. Variability of answers by the states existed but was not as great as anticipated. Summaries of the answers, many of which have been discussed in earlier sections, are also shown below.

Vocational Education Planning Staff

Determination of Occupational Demand Outlook Numbers:

To what extent do these numbers depend on the employment security forecasts? What adjustments are made in the employment security forecasts? Are these adjustments primarily by occupational title or do they reflect adjustments in aggregate employment forecasts?

Other than the vocational education planning staff and the employment security staff, what other state personnel are involved in the occupational demand forecasts?

What are the main difficulties you encounter in preparing the demand forecasts?

> The occupational demand projections for the state are almost totally dependent upon numbers provided by employment security. The main adjustment that has to be made with the numbers is to "cross-walk" between the OES coding and the six-digit OE codes. Sometimes this is done by employment security personnel; more often it is done by the vocational education staff. The numbers presented are always interpolated values from the 1974-85 projections report. Very little adjustment of the totals or of specific occupational titles was made, except in some instances for agriculture. No personnel are involved in the projections of occupational demand for the plans othern than the employment security staff and vocational

education planners, although both groups may have considerable local involvement. The main difficulties encountered were the cross-walking of projections between OES codes and OE codes and the provision of the data to vocational education in accord with the timing of their planning cycle.

Determination of Occupational Supply Outlook Numbers:

What sources of information are used to obtain these numbers? Do you have information from training programs other than vocational education?

To what extent is supply (over the longer period) determined by student preferences?

What are the main difficulties you encounter in preparing the supply forecasts?

Follow-up reports on students and management information on enrollments are the main sources of information relating to occupational supply. It was generally agreed that student preferences might be an obstacle to increasing enrollments in "undertrained" occupations. (Somewhat like the saying, "You can pull on a string, but you can't push it.") The main difficulty in preparing the supply forecasts is the lack of coverage in most states of other training programs and the less than complete conceptualization of the notion of supply.

Adjustments to the Projections:

How responsive is the forecasting process to new information (e.g., to the news that an industrial plant is moving into your state)?

What effect on planning and programming does the gap between your measure of supply and the economic measure of supply have? For example, do you utilize information on unemployment of vocational education graduates?

What feedback or correction mechanism do you use to adjust market demand forecasts to current market imbalances?

Do you have any plans to change your methodology?

How much mechanization and/or computerization of the process do you have or do you foresee?

In most states, the forecating process (i.e., the determination of future occupational supply and demand) does not incorporate new demand information from sources such as new plant openings nor is there much influence on the projected data from other types of supply measures. However, information on the placement experience of vocational education graduates does seem to be influential, at least over a long period, on program decisions. Several states were in the process of improving coordination between the planning function and the management information system. This will probably result in more accurate data on the supply side. Most states wish that at least some parts of the process could be computerized; only two of the states surveyed were at ease with their degree of computerization and method of cross-walking.

Usefulness of the Projections:

How are the occupational demand and supply forecasts used in making decisions about vocational education?

Is the fine level of detail required by the Federal regulations for the plans a help or a hindrance in planning for your own purposes? Would it be better for you to spend more effort analyzing various scenarios of broad movements of labor demand and supply rather than disaggregating one scenario to the six-digit codes?

If you were not subject to current Federal requirements for annual plans, what changes would you make in the occupational demand and supply process to make the numbers more useful for vocational educational planning?

What time horizon do you think is the most appropriate for vocational education planning?

The extent to which the occupational demand and supply projections which appear in the plan are used in making program decisions in vocational education has been discussed above. Certainly, the fine level of detail required in the plans is seen as a burden by the planners. Clustering the highly disaggregate occupations into broader skill groups would help alleviate some of the

difficulty and would provide the opportunity for more meaningful analysis. Elimination of highly disaggregate reporting requirements, use of a single occupational code, and emphasis on a longer time horizon were among the changes advocated by most of the planners.

Regional Cooperation and the Future:

How do you think regional cooperation among vocational education planning staffs would aid your work?

What major developments do you think will have the greatest impact on vocational education in the next few years?

There was a strong feeling among vocational education planning staffs that a sharing of information and problems among states in the region would be beneficial. In several states, the idea that regional interaction among both the employment security staff and the vocational education planners would be useful was also expressed. The southern states were seen as somewhat unique in the agricultural self-perception of students and teachers but also in the rapid and successful degree of industrialization. Most of those surveyed felt that "accountability" would continue to be a key issue in vocational education, that student demand for vocational education would increase, that there would be increased pressures on vocational education to respond to minority groups, and that highly detailed planning would continue to be required.

Employment Security Staff

To what extent are your numbers for occupational outlook developed for the purpose of serving as the basis for forecasts for vocational education planning?

To what extent are your occupational outlook numbers the result of the Bureau of Labor Statistics projection technique? To what extent do you incorporate survey data on occupational outlook? To what extent is specific information at the level of the firm incorporated into your outlook (e.g., when there is definite information about a new firm moving into an area)?

What techniques do you use to move from gross employment outlooks to net employment needs and then to vocational education demand?

What correction or feedback mechanism is involved in your forecasting technique?

How do you handle new industries or job sources with interstate demands, e.g., the Tennessee-Tombigbee?

A long history of a high degree of cooperation characterizes the relationship between the employment security staff and the vocational education planners. Data from the OES Occupational Employment Projections generally provide the basis for the occupational demands shown in the plans. While every state looks forward to the time when the OES Survey data will be incorporated into the state matrix, little use of the existing surveys has been made by vocational education planners. As stated in previous sections, little "micro" information is incorporated into the projections data; there is no feedback or adjustment or updating of the projections; there is little adjustment of the regression-based projections for the impact of such interstate projects as the Tennessee-Tombigbee waterway. Most held the view that there was a greater risk than reward in incorporating this type of information.

Economic Development Staff

Relationship between Vocational Education and Economic Development:

What regular lines of communication do you have with the vocational education staff?

What techniques and incentives are used to attract new business? Is the vocational education system used as a recruiting device? Do you assist incoming businesses with their training needs?

What sources of information are used to determine growth areas and to track new industrial development?

The degree of interaction between the vocational education staff and economic development personnel varied

from state to state. In most cases, there was a high degree of cooperation in the sense of vocational education program responsiveness to the needs of newly locating industries. Several states used the possibility of job training as a selling point to provide an incentive for incoming businesses. However, there were no instances of information about new industry from economic development personnel making its way into the state plans. The economic development staff obtained its information from inquiries directed to them by individual plants or local areas although some states coordinated an active industry recruitment effort.

Economic Trends:

What are the current economic and industrial trends in your state? Are any major changes foreseen?

How is your state affected by national influences such as the increase in foreign competition in the manufacturing industry?

How is your state affected by regional trends?

These issues are dealt with extensively in the section below entitled "The Economy of the Eight Southern States".

THE ECONOMY OF THE EIGHT SOUTHERN STATES

Introduction

The diversity of the economies of the various states and regions of the United States is striking. No state or region has an economic base, history or performance exactly like any other. The differences which are so interesting to an economic analyst are a source of joy and sorrow to planners. The uniqueness of each state or regional economy provides opportunities for future growth and development, but also means that planning for the future must take account of the unique economic reality of that state or region.

The eight southern states in Federal Administrative Region IV are not homogeneous by any measure. For example, manufacturing provided 37% of all payroll jobs in North Carolina in 1976 but only 12% in Florida. However, the eight states share an historical and economic tradition as well as experiencing the economic growth blessings of being in the "New South". *In the ten years between 1966 and 1976, every one of the eight states showed faster growth in nonfarm payroll employment than did the rest of the United States.* The region as a whole averaged 3.5% annual growth in employment over that period while the rest of the United States grew at only a 2.0% annual rate.

This section of the report will first concentrate on the *region as a whole* in contrast to the rest of the United States. Highlights of an individual state's experience will not be ignored, but the emphasis will be on the history and current experience of employment and other economic indicators. Following that, each state will be examined in more detail and then attention will be devoted to future developments and other impacts on vocational education planning.

Employment -- Current and Historical Trends

Table 1 shows the 1976 levels of nonfarm payroll employment for the eight states, the region, the United States, and the United States excluding the region. In 1976, this measure of employment (which excludes the self-employed, farm workers, unpaid family workers, and others) showed 12.3 million people employed in the region, or 15.5% of the 79.4 million employed in the whole United States. During the previous ten years, the region had added 3.6 jobs while the nation as a whole had increased by 15.5 million. *The region accounted for 23% of the entire increase,* its greater rate of growth helping it to catch up with the rest of the United States.

- Growth -

Table 2 gives growth during the 1966-76 decade in terms of annual growth rates of employment by industry and by state. As stated above, *each* of the eight states had employment growth higher than the 2.0% annual growth of the rest of the nation, with the *region as a whole averaging 3.5%.* In the basic energy sector, the region's employment growth was 3.6% a year compared to 2.1% for the rest of the nation. Alabama and Kentucky led the region with 5.2% annual growth. Construction employment grew at 1.9% in the region compared to 0.7% annually in the rest of the nation.

The region's manufacturing growth rate of 1.6% was in sharp contrast to the -0.5% annual rate of decline in the rest of the United States. The greatest manufacturing employment growth rate in the region was experienced by Mississippi at 2.8% a year; the greatest job increase for the period, 113,600, was seen in North Carolina.

Employment in transportation and utilities grew at a 2.7% rate in the eight states and at only 0.5% in the rest of the country. The comparable

Table 1

1976 EMPLOYMENT BY INDUSTRY AND JOB INCREASE FROM 1966
(Nonagricultural Payroll Employment in Thousands)

Industry	AL	FL	GA	KY	MS	NC	SC	TN	Eight States	United States	Rest of U. S.
Mining											
1976	13.5	9.2	6.9	46.6	7.0	4.6	1.8	9.4	99	783	684
Change in jobs from 1966	5.4	- 0.8	0.6	18.5	1.3	1.5	0.1	2.5	29	156	127
Construction											
1976	69.2	167.0	84.2	54.4	39.7	104.0	61.4	75.2	655	3,594	2,939
Change in jobs from 1966	14.4	33.0	11.0	7.3	8.7	11.3	12.9	12.1	111	319	208
Manufacturing											
1976	340.0	343.1	477.2	271.1	218.5	757.6	370.5	487.2	1,265	18,956	15,691
Change in jobs from 1966	45.5	67.9	46.7	45.5	52.2	113.6	56.6	62.1	490	- 258	- 748
Transportation and Utilities											
1976	62.4	180.6	117.2	60.5	34.6	96.5	42.8	73.3	688	4,509	3,841
Change in jobs from 1966	10.7	62.7	28.1	3.6	7.5	18.9	12.5	13.9	158	358	200
Wholesale and Retail Trade											
1976	243.9	727.1	419.4	234.6	141.4	396.2	188.3	339.8	2,691	17,694	15,003
Change in jobs from 1966	68.8	269.6	138.5	73.5	44.3	122.5	67.7	108.9	894	4,449	3,555
Finance, Ins., and Real Estate											
1976	52.4	188.0	98.8	43.1	28.7	82.1	39.6	69.8	603	4,316	3,713
Change in jobs from 1966	14.9	85.7	35.8	12.3	11.1	26.2	14.9	21.8	223	1,216	993
Services											
1976	174.6	615.8	276.7	177.0	101.7	280.8	133.2	240.0	2,000	14,644	12,644
Change in jobs from 1966	52.3	312.1	125.5	68.8	41.5	111.0	59.0	84.3	855	5,093	4,238
Government											
1976	249.9	552.0	364.1	221.6	155.8	325.0	201.7	282.7	2,353	14,948	12,595
Change in jobs from 1966	58.3	225.8	120.2	76.4	41.5	107.6	80.7	87.4	798	4,156	3,360
Total Nonagricultural Payroll Employment											
1976	1,205.9	2,782.8	1,844.4	1,108.9	727.4	2,046.8	1,039.3	1,577.4	12,331	79,441	67,110
Change in jobs from 1966	270.3	1,056.0	506.0	305.9	208.1	512.6	304.4	393.0	3,557	15,488	11,931

Source: Bureau of Labor Statistics.

Table 2

ANNUAL GROWTH OF EMPLOYMENT, 1966-76
(Percent Growth Rate of Payroll Employment Per Year)

Industry	AL	FL	GA	KY	MS	NC	SC	TN	Eight States	United States	Rest of U. S.
Mining	5.2	-0.8	1.2	5.2	2.1	4.0	0.6	3.1	3.6	2.2	2.1
Construction	2.4	2.2	1.4	1.5	2.5	1.2	2.4	1.8	1.9	0.9	0.7
Manufacturing	1.4	2.2	1.0	1.9	2.8	1.6	1.7	1.4	1.6	-0.1	-0.5
Transportation and Utilities	1.9	4.4	2.8	0.6	2.5	2.2	3.5	2.1	2.7	0.8	0.5
Wholesale and Retail Trade	3.4	4.7	4.1	3.8	3.8	3.8	4.6	3.9	4.1	2.9	2.7
Finance, Insurance, and Real Estate	3.4	6.3	4.6	3.7	5.0	3.9	4.8	3.8	4.7	3.4	3.2
Services	3.6	7.3	6.2	5.0	5.4	5.2	6.0	4.4	5.7	4.4	4.2
Government	2.7	5.4	4.1	4.3	3.1	4.1	5.2	3.8	4.2	3.3	3.2
Total Nonfarm Payroll Employment	2.6	4.9	3.3	3.3	3.4	2.9	3.5	2.9	3.5	2.2	2.0

Source: Bureau of Labor Statistics.

figures for the wholesale and retail trade industry were 4.1% vs. 2.7% for the period.

The three sectors which were the fastest growing in the nation were also the fastest growing in the region. The financial sector grew at 4.7% annual growth of employment in the region and 3.2% in the rest of the nation. The service sector employment increased at a 5.7% annual rate for the region and 4.2% in the rest of the country. Employment in the region's government sector grew at a 4.2% annual rate compared to 3.2% elsewhere.

- 1976 Shares -

When examined by industry, some interesting features can be noted. The region is least represented in the industry classification of "Mining" (which includes all basic energy industries). Only 12.6% of the nation's employment in this category is located in the region. However, a good deal of catch-up is taking place, since the region accounted for 18.6% of the nation's growth in the past decade.

Other industries with a much lower than average representation in the region are finance, insurance, and real estate and the service sector. The "FIR" industry has a 14% representation in the region while services are 13.6%. Both industries showed greater-than-share growth in the last decade, with finance, insurance, and real estate in the region giving 18% of the nation's growth, while services accounted for nearly 17%.

Two industries with a greater than average share in the region are construction and manufacturing. Construction in the region is 18.2% in the nation's employment while manufacturing is 17.2%. The growth of employment in both of these industries was a major share of national growth during the past decade. In construction, for example, job growth in the region accounted

for 35% of the total growth in the nation. In manufacturing, the statistics are astounding. *The growth of 490,000 jobs in manufacturing in the eight-state region offset a decline of 748,000 jobs in the rest of the nation during the 1966-76 period.*

Regional jobs in transportation and utilities were 14.8% of the nation's total in 1976. The region's growth of 158,000 jobs in this industrial category was 44% of the nation's growth of 358,000. The wholesale and retail trade industry and the government sector in the region represented 15.2% and 15.7% of the nation's employment, respectively. Their share of job growth in the 1966-76 decade was 20% and 19%, respectively. These two industries are the closest to total employment averages.

- Type of Industrialization -

A slightly different measure of the relative importance of industries by state and region is shown in Table 3. In 1976, for example, we note that manufacturing provided 26.5% of payroll jobs in the eight-state region and 23.4% elsewhere. This statistic may be somewhat surprising to those accustomed to thinking of the "industrialized North" and the "rural South". Although the stereotype must be discarded, the reason for the misconception is probably best seen by examining Table 4, which details manufacturing by type for 1975, the latest available year.

In Table 4, a category of manufacturing denoted "Metals and Equipment" is isolated. It consists of primary metal industries, fabricated metal products manufacturing, machinery manufacturing, and production of transportation equipment. In 1975, 24.7% of southern manufacturing was of this type. However, in the United States, other than in the eight states, this type of "hard" manufacturing supplied 47.3% of all manufacturing jobs. On the other

Table 3

DISTRIBUTION OF EMPLOYMENT
(1976, Percent of Total Payroll Employment)

Industry	AL	FL	GA	KY	MS	NC	SC	TN	Eight States	United States	Rest of U. S.
Mining	1.1	0.3	0.4	4.2	1.0	0.2	0.2	0.6	0.8	1.0	1.1
Construction	5.7	6.0	4.6	4.9	5.5	5.1	5.9	4.8	5.3	4.5	4.4
Manufacturing	28.2	12.3	25.9	24.4	30.0	37.0	35.6	30.9	26.5	23.9	23.4
Transportation and Utilities	5.2	6.5	6.4	5.5	4.8	4.7	4.1	4.6	5.4	5.7	5.7
Wholesale and Retail Trade	20.2	26.1	22.7	21.2	19.4	19.4	18.1	21.5	21.8	22.3	22.4
Finance, Insurance, and Real Estate	4.3	6.8	5.4	3.9	3.9	4.0	3.8	4.4	4.9	5.4	5.5
Services	14.5	22.1	15.0	16.0	14.0	13.7	12.8	15.2	16.2	18.4	18.8
Government	20.7	19.8	19.7	20.0	21.4	15.9	19.4	17.9	19.1	18.8	18.7
Total Nonfarm Payroll Employment	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Bureau of Labor Statistics.

Table 4

SOUTHERN MANUFACTURING
(Nonagricultural Payroll Employment in Thousands)

	AL	FL	GA	KY	MS	NC	SC	TN	Eight States	United States	Rest of U. S.
Durable Manufacturing											
1965	135.7	131.5	134.2	106.9	76.8	174.1	64.9	148.9	973.0	10,406	9,433
1975	144.8	166.9	138.8	139.4	109.8	239.0	91.1	191.0	1,220.8	10,679	9,458
Growth in Decade	6.7%	26.9%	3.4%	30.4%	43.0%	37.3%	40.4%	28.3%	25.5%	2.6%	0.3%
Metals and Equipment[1]											
1965	91.6	78.5	77.1	81.9	33.4	67.2	26.3	83.3	539.3	7,705	7,166
1975	103.6	109.1	86.7	112.7	65.1	112.3	48.2	120.0	756.7	7,994	7,237
Growth in Decade	13.1%	37.7%	12.4%	37.6%	94.9%	67.1%	83.3%	44.1%	40.3%	3.8%	1.0%
Nondurable Manufacturing											
1965	141.3	120.3	268.8	98.9	75.8	422.1	228.4	238.4	1,594.0	7,656	6,062
1975	175.0	160.8	294.4	114.8	88.3	497.5	245.3	263.1	1,839.2	7,668	5,829
Growth in Decade	23.9%	33.7%	9.5%	16.1%	16.5%	17.9%	7.4%	10.4%	15.4%	0.2%	-3.8%
Food and Kindred Products[2]											
1965	24.7	46.7	46.9	24.8	16.9	37.8	12.1	32.9	242.8	1,757	1,514
1975	25.6	42.5	50.0	22.8	19.2	39.1	13.0	37.2	249.4	1,676	1,427
Growth in Decade	3.6%	-9.0%	6.6%	-8.1%	13.6%	3.4%	7.4%	13.1%	2.7%	-4.6%	-5.7%
Textiles and Apparel[3]											
1965	75.1	13.2	167.0	28.3	39.9	303.5	180.8	94.7	902.5	2,280	1,377
1975	91.5	24.7	173.5	31.0	42.6	335.9	175.8	94.6	969.6	2,137	1,167
Growth in Decade	21.8%	87.1%	3.9%	9.5%	6.8%	10.7%	-2.8%	-0.1%	7.4%	-6.3%	-15.3%
Total Manufacturing											
1965	277.0	251.8	403.0	205.8	152.6	596.2	293.3	387.3	2,567.0	18,062	15,495
1975	319.8	327.7	433.2	254.2	198.0	736.5	336.4	454.1	3,059.9	18,347	15,287
Growth in Decade	15.5%	30.1%	7.5%	23.5%	29.8%	23.5%	14.7%	17.2%	19.2%	1.6%	-1.3%

[1] SIC Codes 33, 34, 35, 36, 37: Primary Metal Industries; Fabricated Metal Products; Machinery except Electrical; Electrical Equipment and Supplies; and Transportation Equipment.

[2] SIC Code 20.

[3] SIC Codes 22, 23: Textile Mill Products and Apparel and Other Textile Products.

Source: Bureau of Labor Statistics, Employment and Earnings, States and Areas, 1939-75.

-30-

hand, the "soft" manufacturing represented by the textiles and apparel industries provided 31.7% of all manufacturing jobs in the region and only 7.6% in the rest of the country.

Even though the eight states show a smaller percentage of their manufacturing jobs concentrated in the high-wage metals and equipment sector, the growth of this sector in the region has far outstripped national growth. Between 1965 and 1975, regional job growth in this sector totaled 40.3% while it was only 1.0% for the rest of the nation. As southern markets have developed because of the migration patterns and other demographic changes, manufacturing firms in this sector have expanded by building new plants in the region.

Personal Income

Personal income for the eight states is shown at the top of Table 5. In 1976, the region had total personal income of $193.2 billion, or *14.1%* of the nation's $1.374 trillion. Because total income measures depend greatly on the size of the relevant population, most analyses of personal income adjust for population and examine per capita personal income. Table 6 illustrates the differences in per capita personal income more clearly. *In 1976, per capita personal income in the eight states averaged $5,462 per person while it was $6,584 per person in the rest of the United States.* The regional average was *85.4%* of the national average. However, this was a great improvement over previous performance. In 1970, for example, the region's per capita personal income was 81.7% of the nation's and in 1960 it was only 72.3%.

In order to determine how much real personal income grew (i.e., adjusted for the effect of inflation), the figures must be expressed in terms of constant (1967) dollars. The table shows that between 1960 and 1970

Table 5

COMPARATIVE ECONOMIC AND DEMOGRAPHIC STATISTICS

	AL	FL	GA	KY	MS	NC	SC	TN	Eight States	United States	Rest of U. S.
Personal Income, 1976 Millions of Dollars	$18,714	$50,690	$27,576	$18,439	$10,663	$29,821	$14,662	$22,606	$193,171	$1,373,511	$1,180,340
Per Capita Personal Income 1976, Dollars	$ 5,106	$ 6,020	$ 5,548	$ 5,379	$ 4,529	$ 5,453	$ 5,147	$ 5,364	$ 5,462	$ 6,399	$ 6,584
Farm Personal Income 1976, Percent of Total[1]	3.4%	2.8%	3.2%	4.6%	6.2%	5.3%	2.3%	2.4%	3.6%	2.4%	2.2%
Civilian Labor Force, Thousands, 1976	1,480	3,476	2,206	1,448	943	2,556	1,256	1,826	15,203	95,018	79,815
Unemployment Rate, 1976	6.8%	9.0%	8.1%	5.6%	6.6%	6.2%	6.9%	6.0%	7.1%	7.7%	7.8%
Labor Force Participation Rate, 1976	57.1%	55.4%	63.9%	59.6%	58.9%	66.2%	64.7%	59.9%	60.3%	61.7%	62.0%
Median Age of Population, 1970	27.1	32.5	26.0	27.7	25.1	26.6	24.7	28.4	27.8	28.3	-
Percent with High School or More, 1970, 25 Years and Older	41.3%	52.6%	40.6%	38.5%	41.0%	38.5%	37.8%	41.8%	42.9%	52.3%	54.0%
1976 Population Thousands	3,665	8,421	4,970	3,428	2,354	5,469	2,848	4,214	35,369	214,648	179,279
Population Change, 1960-76	12.2%	70.1%	26.0%	12.8%	8.1%	20.0%	19.5%	18.1%	26.8%	19.7%	18.4%
Urban Population, 1970, Percent of Total	4.6%	1.1%	3.7%	11.9%	9.5%	7.4%	4.3%	8.1%	5.6%	4.1%	3.8%
Decline in Farm Population, 1960-70 Percent	-60.4%	-31.5%	57.9%	-30.3%	-61.3%	-53.6%	-68.2%	-46.0%	-52.1%	-38.3%	-32.9%

[1] On basis of labor and proprietors' income.

Source: Survey of Current Business, August 1977; Bureau of Labor Statistics: City and County Data Books, 1962 and 1972.

Table 6

PER CAPITA PERSONAL INCOME

	AL	FL	GA	KY	MS	NC	SC	TN	Eight States	United States	Rest of U. S.
Per Capita Personal Income in Current Dollars											
1976	$5,106	$6,020	$5,548	$5,379	$4,529	$5,453	$5,147	$5,364	$5,462	$6,399	$6,584
1970	2,948	3,738	3,354	3,112	2,626	3,252	2,990	3,119	3,241	3,966	4,101
1960	1,518	1,947	1,651	1,586	1,222	1,590	1,397	1,576	1,606	2,222	2,335
Per Capita Personal Income in Current Dollars as a Percent of the United States											
1976	79.8%	94.1%	86.7%	84.1%	70.8%	85.2%	80.4%	83.8%	85.4%	100.0%	-
1970	74.3	94.3	84.6	78.5	66.2	82.0	75.4	78.6	81.7	100.0	-
1960	68.3	87.6	74.3	71.4	55.0	71.6	62.9	70.9	72.3	100.0	-
Real Per Capita Personal Income, 1967 Dollars											
1976	$3,117	$3,675	$3,387	$3,284	$2,765	$3,329	$3,142	$3,275	$3,335	$3,907	$4,019
1970	2,608	3,307	2,968	2,754	2,323	2,877	2,645	2,759	2,867	3,509	3,628
1960	1,688	2,164	1,836	1,763	1,359	1,768	1,553	1,752	1,785	2,470	2,596
Annual Rate of Growth in Real Per Capita Personal Income											
1970-76	3.0%	1.8%	2.2%	3.0%	2.9%	2.5%	2.9%	2.9%	2.6%	1.8%	1.7%
1960-70	4.4	4.3	4.9	4.6	5.5	5.0	5.5	4.6	4.9	3.6	3.4

Source: Survey of Current Business and Statistical Abstracts.

the national average for real per capita personal income grew at 3.6%, indicating substantial gain each year in real economic well-being. During that period, this economic indicator in the region rose at 4.9% a year. Between 1970 and 1976, all areas showed a slowing in real growth due to the recession. Over these years, the nation had annual growth in real per capita personal income of 1.8% while the region still outperformed, growing at 2.6% a year.

Importance of Agriculture

The eight-state region is more "rural" than the rest of the country and agriculture is a more significant industry. Table 5 illustrates that in 1976, personal income generated on farms accounted for 3.6% of personal income in the region but only 2.2% elsewhere in the United States. Mississippi had the highest farm share in the region, 6.2%, with both North Carolina at 5.3% and Kentucky at 4.6%, also significantly farm-intensive.

Another measure is the percent of the population living on farms. In 1970, 5.6% of the region's population lived on a farm, while the average was 3.8% for the rest of the country. Mississippi and Kentucky were the states in the region with the highest ratios of people living on farms.

Like the rest of the nation, the region saw a great decline in rural living during the 1960's. Between 1960 and 1970, the number of people living on farms in the region actually declined by 52%. In the rest of the country, the decline was 33%.

Population and Labor Force

In 1976, the population in the region was 16.5% of national population, up from 15.7% share in 1970. During the sixteen years between 1960 and 1976, the number of people in the eight states has grown 26.8% while population

has risen 18.4% elsewhere. Florida and Georgia saw the greatest population increase in the region; Mississippi, Alabama, and Kentucky were the slowest growers. Table 5 also indicates that these latter three states have lower labor force participation rates than the national average and are the lowest in the region (except for Florida where the large percentage of retirees depresses the labor force participation rate number). Labor force participation rates are a function both of worker preferences, skills, and attitudes and of job availability. While low labor force participation rates in these states probably reflect lack of job availability or of appropriate skills, they also indicate a reserve of unused resources which can be attractive to industries needing to expand or relocate.

Employment by Occupation -- Current and Historical

Employment by occupation is not available at the state level historically but is available nationally. Table 7 presents information about employment by occupation for 1967 and 1977 nationally. White-collar and service workers have seen a greater increase than blue-collar workers; the number of farm workers actually declined over the period.

Individual States

- Alabama -

The Alabama economy did not perform as well as the other southern states during the 1966-76 decade. Table 2 indicates that the annual growth of non-farm payroll employment in Alabama over that period was 2.6% a year, the slowest of the eight southern states. However, this was still a stronger showing than the average growth in jobs in the rest of the United States, which was only 2.0% a year. There were certainly some bright spots.

Table 7

EMPLOYMENT BY OCCUPATION

	1977				1967				Annual Growth 1967-1977
	Thousands	Percent of Total	Percent Female	Percent Black	Thousands	Percent of Total	Percent Female	Percent Black	
Total Employed[1]	90,546	100.0	40.5	10.6	74,375	100.0	36.2	10.8	2.0%
White-Collar Workers	45,187	49.9	51.3	7.7	34,247	46.0	45.8	5.5	2.8%
Professional and Technical	13,692	15.1	42.6	8.4	9,877	13.3	37.4	5.9	3.3
Managers and Administrators	9,662	10.7	22.3	4.8	7,504	10.1	15.6	2.8	2.6
Sales Workers	5,728	6.3	43.3	4.5	4,536	6.1	42.0	4.1	2.4
Clerical Workers	16,106	17.8	78.9	9.8	12,330	16.6	72.4	7.3	2.7
Blue-Collar Workers	30,211	33.4	17.7	12.2	27,252	36.6	16.8	13.5	1.0%
Craftsmen and Kindred Workers	11,881	13.1	5.0	7.4	9,818	13.2	2.9	6.2	1.9
Operatives, excluding Transport	10,354	11.4	39.6	14.3	10,645	14.3	38.6	13.8	-0.3
Transport Equipment Operatives	3,476	3.8	6.8	14.6	3,064	4.1	2.4	13.3	1.3
Other Nonfarm Laborers	4,500	5.0	9.4	18.1	3,725	5.0	3.2	24.5	1.9
Service Workers	12,392	13.7	62.0	19.8	9,331	12.5	64.3	25.2	2.9%
Private Household	1,158	1.3	97.0	35.8	1,776	2.4	98.1	47.1	-4.2
Protective Services	1,324	1.5	7.9	12.2	951	1.3	4.4	6.8	3.4
Other Service Workers	9,910	10.9	65.0	18.9	6,604	8.9	63.8	21.9	4.1
Farm Workers	2,756	3.0	17.2	7.7	3,545	4.8	17.3	11.8	-2.5%

[1] Employment on household survey basis.

Source: Bureau of Labor Statistics.

Employment in mining grew at 5.2% a year, tying Kentucky for the fastest growth in the region. Construction employment also showed relative strength. The 2.4% annual growth in this sector's employment was surpassed in the region only slightly by Mississippi's 2.5% growth rate and was far superior to the 0.7% of the rest of the United States.

Employment growth in four sectors, however, was the weakest in the eight southern states. (See Table 2.) These sectors -- trade; finance, insurance, and real estate; services; and government -- historically grow at a later stage of maturity of the economic development of a state or region. Perhaps recent growth of manufacturing in Alabama will induce stronger growth in these sectors through secondary effects.

In 1976, per capita personal income in Alabama was $5,106, the second lowest in the region. (See Table 5.) However, growth in real per capita personal income was 3.0% a year between 1970 and 1976 for Alabama (Table 6), a showing at least as good as the other states in the region.

- Florida -

In terms of employment growth, Florida's economy showed the greatest strength in the region during the 1966-76 decade. Table 2 indicates that the number of nonfarm payroll jobs grew 4.9% a year during this period, while the next closest state grew only 3.5% a year. In five sectors, the job growth in Florida was greater than any other state in the region -- transportation and utilities; trade; finance, insurance, and real estate; services; and government. Manufacturing employment growth was second only to Mississippi during the 1966-76 period and slightly surpassed it when the 1965-75 decade is examined (Table 4). Manufacturing, however, accounted for only 12.3% of all jobs in Florida in 1976 (Table 3.) In the other seven

southern states, manufacturing averaged 30.3% of all payroll nonfarm jobs. Thus, the reason for the strong showing in the growth of the five sectors mentioned cannot be found in the secondary effects of the development of a large manufacturing sector. More likely, it is because employment in these five sectors is income and population related. Florida's population increased 70.1% between 1960 and 1976, while the rest of the region averaged 16.7%. (See Table 5.) Moreover, per capita personal income was the highest in the region, $6,020 in 1976, compared to a regional average of $5,462.

Other Florida statistics are consistent with the state's experience of tremendous in-migration both of retirees and of productive people drawn by employment opportunities. Table 5 indicates that the median age of the population in 1970 was 32.5 compared to an average of 26.5 years for the rest of the region, and that the percent with at least a high school education was the highest in the region. Florida had the lowest percent of citizens living on a farm (1.1% compared to an average of 7.1% for the rest of the region).

- Georgia -

Georgia's employment growth during the last decade was about average for the region (3.3% a year compared to an average 3.5%). However, both Table 2 and Table 4 indicate that Georgia's job growth in manufacturing was the weakest in the region. Service employment in Georgia grew 6.2% a year, second only to Florida, and reflected the development of tourist and convention activity.

There are other statistics which give a picture of Georgia more similar to Florida than to the other states in the region. For example, per capita personal income in Georgia is second only to Florida in the region, at $5,548

per person in 1976. Also, Georgia and Florida were hardest hit by the recession, possibly because the recession hit the construction sector most severely. The 1976 unemployment rate in Georgia was 8.1%, better than Florida's 9.0%, but worse than the 6.4% average of the other six states in the region. (See Table 5.) Georgia's population gain between 1960 and 1976 was 26.0%, higher than any other state in the region except Florida.

- Kentucky -

Except for three sectors, the employment growth experience in Kentucky is about average for the region. In mining, however, Kentucky is certainly dominant in the region. Although the 5.2% annual growth for this sector between 1966 and 1976 was matched by Alabama, the actual number of new jobs in mining was 18,500 for Kentucky compared to 5,400 for Alabama (Tables 1 and 2). The transportation and utilities sector had the slowest growth in the region during the 1966-76 decade, while the increase in jobs in the finance, insurance, and real estate sector was second slowest.

Per capita personal income in Kentucky, $5,379 in 1976, is about average for the region. (See Table 5.) The 1976 unemployment rate was lower than that of the other states, but the population increase between 1960 and 1976 was also among the smallest. One of the most interesting features of Kentucky is that 11.9% of the population lived on a farm in 1970, the highest percent of any state in the region, and Kentucky showed the least decline in farm population between 1960 and 1970.

- Mississippi -

The economic situation in Mississippi is characterized by a low level of per capita personal income but a dramatic recent improvement in manufacturing employment.

Mississippi per capita personal income in 1976 was only $4,529 compared to the regional average of $5,462 and a national average of $6,399. (See Table 5.) Mississippi is one of the most rural states in the region, with 9.5% of the population in 1970 reported as living on a farm and with 6.2% of personal income derived from farming.

The growth in employment between 1966 and 1976 was 3.4% a year, about average for the region. (See Table 2.) Manufacturing jobs grew 2.8% a year during the decade, however, the greatest increase of any state in the region. Although less populous than Alabama, Georgia, or Kentucky, Mississippi actually added more manufacturing jobs (absolute number, not percent) than those three states.

The strength of Mississippi's manufacturing job increase has been in the durable goods area. Table 4 indicates that between 1965 and 1975, durable manufacturing jobs increased 43.0% in Mississippi compared to a regional average of 25.5% (and a gain in the rest of the United States of only 0.3%). The "Metals and Equipment" sector shown in Table 4 showed even greater relative job growth, nearly doubling in Mississippi between 1965 and 1975 compared to an average gain of 40.3% in the region and only 1.0% for the rest of the nation. The strength in manufacturing job growth provides the foundation for future improvements in per capita personal income.

- North Carolina -

Total nonfarm payroll employment in North Carolina grew only 2.9% a year between 1966 and 1976 compared to a regional average growth of 3.5%. (See Table 2.) However, this performance was still better than the 2.0% recorded in the rest of the United States.

Manufacturing accounts for more jobs in North Carolina, both in terms of level and percent, than in any other state in the region. Table 3 indicates that 37.0% of nonfarm employment in North Carolina is in manufacturing, compared to a regional average of 26.5% and 23.4% in the rest of the nation. With manufacturing employment of 757,600 in 1976 (Table 1), North Carolina accounted for 23% of all manufacturing jobs in the region. When only the nondurable manufacturing sector is considered, North Carolina accounts for 27% of the jobs in the region (Table 4).

Per capita personal income in North Carolina in 1976, $5,453, was third in the region and the state registered the highest labor force participation rate, 66.2%. (See Table 5.) Despite the predominance of manufacturing employment, the number of people reported as living on a farm in 1970 was 7.4%, one of the higher ratios in the region.

- South Carolina -

South Carolina had the second strongest rate of increase in nonfarm employment in the region during the 1966-76 decade. No one industrial sector dominated the growth experience, but construction, transportation and utilities, trade, services, and government showed strong performance. South Carolina has the second highest percent of total employment concentrated in manufacturing in 1976 (Table 3) with 35.6%. Between 1965 and 1975, South Carolina was second only to Mississippi in the growth of durable manufacturing jobs and especially in the growth of jobs in the "metals and equipment" sector. (See Table 4.)

Of the eight states in the region, South Carolina has the lowest share of personal income originating in the farming sector, and the greatest decline in the percent of people living on farms. (See Table 5.)

Although it has one of the highest labor force participation rates in the region, it has the lowest percent with a high school education and the youngest median age. Per capita personal income, at $5,147 in 1976, was among the lowest in the region, although South Carolina, like Mississippi, has shown dramatic improvement in the last sixteen years.

- Tennessee -

Employment growth in Tennessee during the 1966-76 decade was slower than the regional average in every sector (Table 2), although every sector had faster employment growth than the rest of the United States. In terms of distribution of employment (Table 3), Tennessee shows relative concentration in the wholesale and retail trade sector and in services.

Tennessee had the third highest ratio of farm residents in 1970 among the states in the region (Table 5), but the second lowest share for farm income as a percent of total personal income. The median age of the population, 28.4 years, was among the oldest in the region, second only to Florida, but the percent with at least a high school education was the second highest.

Tennessee is a state which has experienced balanced growth and which has the potential for further expansion without fear of dislocations or distortions.

Future Developments

Most economists and planners agree that the substantial locational advantages of the states in the region will continue to provide the opportunity for greater economic and employment growth than is possible in the rest of the country. Even those states which have already had their manufacturing surge have the opportunity for development in other sectors of their economy. Table 8 shows a forecast for job growth in the individual

Table 8

FUTURE EMPLOYMENT GROWTH
(Forecast Annual Percent Change)

	1976-79[1]										1976-85[2]
	AL	FL	GA	KY	MS	NC	SC	TN	Eight States	United States	United States
Goods-Producing[3]	2.4	4.4	2.3	3.7	2.9	2.7	1.6	3.7	3.0	1.7	1.4
Construction	1.8	6.5	4.1	6.5	6.3	1.9	0.2	5.9	4.3	3.5	3.2
Durable Manufacturing	3.1	5.6	2.9	3.3	3.2	3.2	4.9	4.7	3.9	1.6	1.1
Nondurable Manufacturing	1.9	1.2	1.5	1.5	0.6	2.7	0.7	2.3	1.8	0.8	0.7
Goods-Related	2.8	4.0	2.1	1.4	2.0	2.6	3.9	3.5	3.0	1.1	2.0
Transportation and Utilities											0.9
Wholesale Trade											3.7
Income-Related	3.9	3.0	3.4	4.3	5.1	3.3	5.6	3.7	3.7	3.1	2.3
Retail Trade											1.5
Finance, Insurance, and Real Estate											1.9
Services											2.9
Government	3.2	3.1	3.0	1.9	3.1	3.8	3.6	3.9	3.2	2.7	2.9
Total Non-agricultural Employment	3.2	3.4	2.8	3.3	3.6	3.1	3.5	3.7	3.3	2.4	2.0

[1] [2] Forecasts of Payroll Employment.
[3] Forecasts of Total Employment, Including Self-Employment, etc.
Mining Included in Total of Goods-Producing.
Sources: [1] Georgia State University Economic Forecasting Project Projections.
[2] Bureau of Labor Statistics Projections for 1985, Actual 1976.

states and the region and indicates, for example, that Mississippi and South Carolina can expect healthy growth in income-induced employment, 5.1% and 5.6% a year, respectively, for the 1976-79 period. The 1974-85 projections published by the Bureau of Labor Statistics indicate that total employment for the region is expected to grow 2.2% a year during those eleven years compared to only 1.7% a year for the United States on average.

RECOMMENDATIONS

1. The Southern Association of Colleges and Schools, each State Department of Vocational Education, and each State Occupational Information Coordinating Committee (SOICC) should lobby strongly in behalf of efforts to standardize occupational codes. In the interim, regional cooperation in exchanging "cross-walk" techniques and information would be very beneficial.

2. These same groups should encourage research into an intermediate level of aggregation of occupational groups. Some level of clustering of the six-digit OE coded occupational demand and supply would make meaningful analysis more possible.

3. Analysis of projections data should be strengthened. This would encourage more diverse and frequent use of the projections data. Incorporation of other information into the projections may not be feasible under the current legislative environment, but validation of clustered projections through comparison with other data sources (e.g., local information, the OES Survey data, etc.) should be undertaken on a regular basis.

4. Research on a better conceptualization of supply should be encouraged and undertaken by the Department of Labor. In the interim, states who currently only include vocational education program completers should try to get more complete information on a regular basis (e.g., on private school graduates and CETA completers). In some states, management information system data on enrollments and completions could be coordinated better with the planning function.

5. As an augmentation of current concepts of supply, a possible research project for a state or group of states would be to set up a computerized inventory of skills covering individuals in the state or region.

6. Further clarification of the concepts of occupational supply and demand with regard to what is vocationally trainable should be a priority for the SOICC's.

7. Provision of manpower data at the sub-state level should have a high priority with the Bureau of Labor Statistics and the state employment security agencies.

8. Training programs in the foundations, availability, and use of manpower data and applications to planning should be undertaken for local vocational education planners.

9. Workshops on the uses of manpower data, both attended by state employment security staffs and vocational education planners, would be very beneficial, especially if held on a regional basis among states having comparable problems.

10. Representatives from vocational education should be involved in economic development programs at the state and local level.